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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,203	09/29/2003	Geoffrey Dearnaley	SWRI-2834-03	2668
23770	7590	02/13/2006	EXAMINER	
PAULA D. MORRIS MORRIS & AMATONG, P.C. 10260 WESTHEIMER, SUITE 360 HOUSTON, TX 77042-3110			SHEEHAN, JOHN P	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 02/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/674,203

Applicant(s)

DEARNALEY ET AL.

Examiner

John P. Sheehan

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-100 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-100 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/04 & 7/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - I. The first paragraph of the specification is objected to in that it does not reflect the current status of parent application 09/901,364 filed on July 9, 2001.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 1 to 100 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
 - I. Each of independent claims 1, 58 and 88 recites, "A substrate comprising...consisting essentially of" (claim 1, 58 and 88, the first 2 lines) and again employs "comprising " at least one more time (line 4 of each of claims 1, 58 and 88). In view of the multiple use of "comprising" in combination with "consisting essentially of" it is not clear whether the claims are completely open

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in view of the multiple uses of “comprising” or somewhat less completely open in view of the use of “consisting essentially of” (MPEP 2111.03).

II. In claim 1, the meaning of the language,

“substrate molecules/a mixture of said substrate molecules and substrate-X molecules comprising a chromium-X/a surface” (claim 1, lines 3 and 4, emphasis added by the Examiner)

is not clear. It not clear what the significance is of the “/” in each of the above emphasized phrases.

III. In claim 58, the meaning of the language,

“substrate molecules/a mixture of said substrate molecules and substrate-oxygen (O) molecules comprising a chromium-O/a surface” (claim 58, lines 3 and 4, emphasis added by the Examiner)

is not clear. It not clear what the significance is of the “/” in each of the above emphasized phrases.

IV. In claim 88, the meaning of the language,

“primarily chromium molecules/a mixture of chromium oxide molecules and chromium molecules/a surface” (claim 88, lines 3 and 4, emphasis added by the Examiner)

is not clear. It not clear what the significance is of the “/” in each of the above emphasized phrases.

V. Each of independent claims 1, 58 and 88 require the presence of a gradient, however, it is not clear what aspect of the substrate forms the gradient.

For example, does concentration of the Cr, Cr carbide, or Cr-X compound form the gradient; is it a physical property that forms the gradient, etc?

VI. In claim 96, line 1 "said tool" lacks an antecedent.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 4, 7 to 9, 58 to 65 and 86 to 100 rejected under 35 U.S.C. 102(b) as being anticipated by Ngan et al. (Ngan, US Patent No. 5,169,515).

Ngan teaches a steel having a gradient of chromium oxide concentration decreasing toward the interior of the steel (column 3, line 66 to column 4, line 5), wherein the chromium oxide gradient layer has a thickness of at least 0.1 to 0.2 microns which encompasses the thickness recited in applicants' claims 7 to 9, and 60 to 65. Ngan also teaches that the chromium oxide gradient layer contains chromium carbide molecules as recited in applicants' claims 4, 59, 87 and 90. Applicants claim language "substrate" does not distinguish over the steel taught by Ngan. Further, the unreacted chromium in the gradient area of Ngan's steel would be part of the steel alloy as recited in applicants' claim 91. The structures of the various components recited in claims 92 to 100 are not defined in the claims nor in the specification and therefore do not distinguish

over Ngan's steel. Accordingly, applicants' claimed invention does not distinguish over the invention taught by Ngan.

Claim Rejections - 35 USC § 102/103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 10 to 24 and 66 to 83 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ngan et al. (Ngan, US Patent No. 5,169,515).

Ngan teaches as set forth above and is applied as set forth above.

Ngan is silent with respect to the properties recited in applicants' claims 10 to 24 and 66 to 83.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because Nagan's steel has a chromium oxide concentration that is encompassed by the instant claims, therefore Nagan's steel would be expected to possess all the same properties as recited in the instant claims, *In re Best*, 195 USPQ, 430 and MPEP 2112.01.

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, *In re Best*, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for

believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)." see MPEP 2112.01.

Claim Rejections - 35 USC § 103

8. Claims 25, 26, 84 and 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagan et al. (Nagan, US Patent No. 5,169,515).
9. Nagan teaches and is applied as set forth above.
10. Nagan is silent with respect to the oxygen content of the chromium oxide gradient layer.
11. However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the determination of the appropriate amount of oxygen is considered to well with in the skill of the routineer in the art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (571) 272-1249. The examiner can normally be reached on T-F (6:45-4:30) Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John P. Sheehan
Primary Examiner
Art Unit 1742

jps